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Wilmington District

NCDENR

Currituck Sound Study Coordination Meeting

Mitchell Hall
Project Management Branch
U.S. Army Corps of Engineers, Wilmington District

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CURRITUCK SOUND, NORTH CAROLINA

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Currituck Sound Study Coordination Meeting

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Tuesday, 28 October, 9:00 am - 4:30 pm

9:00 am - 12:00 pm - Presentations and Discussions

Opening Remarks
Tom Reeder, Colonel Ryscavage, Christine Brayman

Currituck Sound Study Overview, Mitch Hall, U.S. Army Corps of Engineers

Currituck Sound Ecosystem Restoration Study Water-Quality Data Collection Efforts, Jason Fine, U.S. Geological Survey

Status of PAR (Photosynthetically Active Radiation) Sensor Deployment, Liz Noble, Elizabeth City State University

Water Quality Data Summary, Barry Bunch, U.S. Army Corps of Engineers

Summary of the Historical Populations and Long Term Trends of Waterfowl, Fish, and Threatened and Endangered Species within Back Bay, Virginia and Currituck Sound, North Carolina, John Gallegos, U.S. Fish and Wildlife Service

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1:15 pm – 4:15 pm - Presentations and Discussions

Tull Creek and West Neck Creek Watershed Modeling, Jared Bales, U.S. Geological Survey.

Development of Coupled Hydrodynamic and Water Quality Models for Currituck Sound and Vicinity:

Part 1. Hydrodynamic Modeling. Ray Chapman and John Hazelton, U.S. Army Corps of Engineers

Part 2. Water Quality Modeling. Barry Bunch, U.S. Army Corps of Engineers

The Feasibility Scoping Meeting (FSM)...an Important Initial Step in Moving Forward!, Gary Hardesty, U.S. Army Corps of Engineers

Considerations for Ecosystem Restoration in Currituck Sound, Chuck Wilson, U.S. Army Corps of Engineers

4:15pm – 4:30 pm - Summary and Closing Remarks

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Wednesday, 29 October 2008, Currituck Sound Study Technical Coordination Meeting at the U.S. Army Corps of Engineers, Field Research Facility

8:30 am - 12:00 noon – Project Delivery Team Discussions

- **Imagery Analysis (USACE)**
- **Water Quality Modeling – Scenarios and Simulations (USACE)**
- **Continued Data Collection Support Activities (USGS)**
- **Expansion of Watershed Modeling (USGS)**
- **Preparation of Feasibility Scoping Package (USACE)**

12:00 noon – Adjourn

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CURRITUCK SOUND, NORTH CAROLINA STUDY AREA

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Currituck Sound Study Overview

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1. Previous Studies
2. Reconnaissance Study Phase
3. Feasibility Study Phase
4. Work Groups
5. Schedule

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Currituck Sound Study Overview
1. Previous Studies

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"Final Survey Report, Eastern North Carolina Above Cape Lookout, North Carolina" April 1991

- Problems identified included flooding, water quality, water supply, shoreline erosion, and declining fish and wildlife habitat in the 17-county region of Northeastern North Carolina. "….all streams flowing into the sounds of North Carolina between Cape Lookout and the Virginia Line except those portions of the Neuse, Pamlico, and Roanoke Rivers above the estuarine reaches".

- Study primarily addressed flood control problems in Belhaven, Elizabeth City, New Bern, Washington, Eastern Hyde County, Carteret County, Dare County and Windsor

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Currituck Sound Study Overview
1. Previous Studies

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"Section 1135 Preliminary Restoration Plan, Virginia Beach Canal No. 2 Flood Control Project" October 1996. U.S. Army Corps of Engineers, Norfolk District

- Investigation concluded hydraulic connection existed between Lynnhaven Bay and Currituck Sound prior to construction of Canal No. 2.

- No evidence that modifying project would significantly reduce salinities in upper portion of Currituck Sound.

" The Albemarle-Pamlico Estuarine Study" U.S. EPA and State of NC

- Comprehensive Strategy for managing the deteriorating natural resources in the estuarine complex including Albemarle, Pamlico and adjoining sounds.

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Currituck Sound Study Overview
2. Reconnaissance Phase

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Reconnaissance Study Started in Response to the Following Resolutions:

March 11, 1998:
"Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army is requested to review the report of the Division Engineer dates June 25, 1991, on Eastern North Carolina above Cape Lookout, North Carolina, and other pertinent reports, to determine whether modifications to recommendations contained therein are advisable at the present time in the interest of water quality, environmental restoration and protection, and related purposes in Currituck Sound."

Fiscal Year 2001:
The report of the House Committee on Appropriations accompanying the Energy and Water Development Appropriations Bill, 2001, recommended funds in the amount of $100,000 for the reconnaissance phase of the Currituck Sound, North Carolina

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Currituck Sound Study Overview
2. Reconnaissance Phase

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Reconnaissance Study:

Existing Conditions, Problems:

- Currituck is a threatened natural resource.
- As recently as 1980's, Currituck Sound supported thriving largemouth bass fishery.
- Since 1980's salinity levels have frequently exceeded the threshold for many freshwater species.
- Significant loss of Submerged Aquatic Vegetation.
- Increase in turbidity and nutrient loading.

Recommendations for Feasibility Study:

- Hydrodynamic flow model needed to evaluate system.
- Model would simulate inflows, outflows, wind-driven tides, and hydraulic connections to other water bodies.
- Model would be used to assess the effects of management strategies on the Sound's water chemistry, quality and resource viability.

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Currituck Sound Study Area

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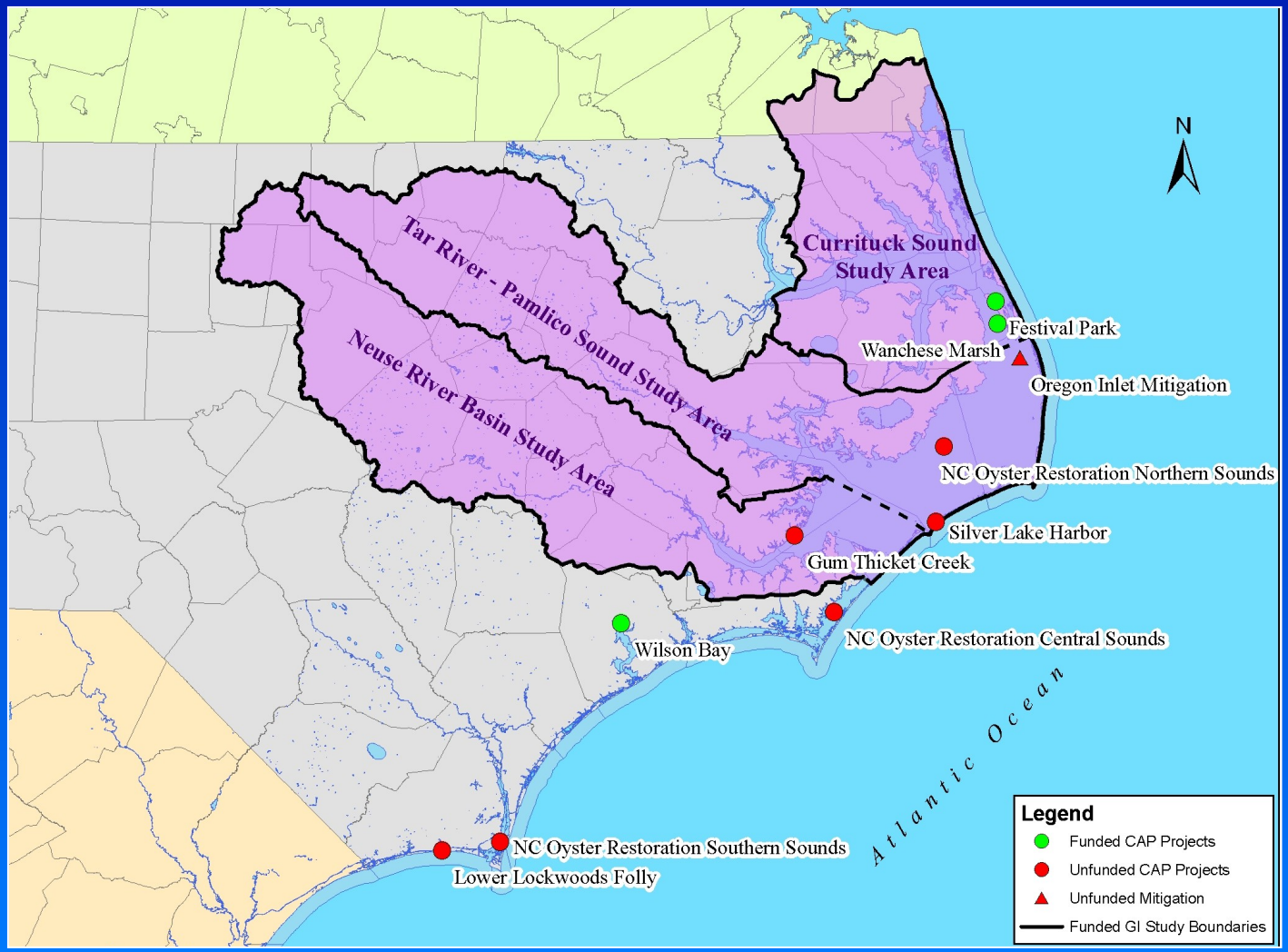

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Currituck Sound Study Overview
3. Feasibility Phase

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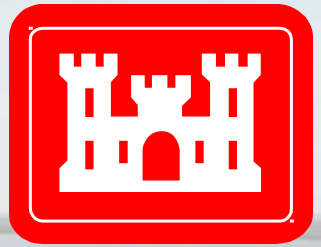
SPONSOR: The North Carolina Department of Environment and Natural Resources (NC DENR)

COST SHARE: This project is cost shared between the U.S. Army Corps of Engineers and NC DENR. Each cost share partner pays 50% of the feasibility phase costs. The reconnaissance phase was paid for with Federal dollars.

Elizabeth City
ECSU
State University



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CHL
Coastal and Hydraulics Laboratory

Albemarle-Pamlico
national estuary program

NCERR

U.S.
FISH & WILDLIFE
SERVICE

USGS
science for a changing world

ERDC
US Army Engineer Research and Development Center

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Currituck Sound Study Overview
2. Reconnaissance Phase
3. Feasibility Phase

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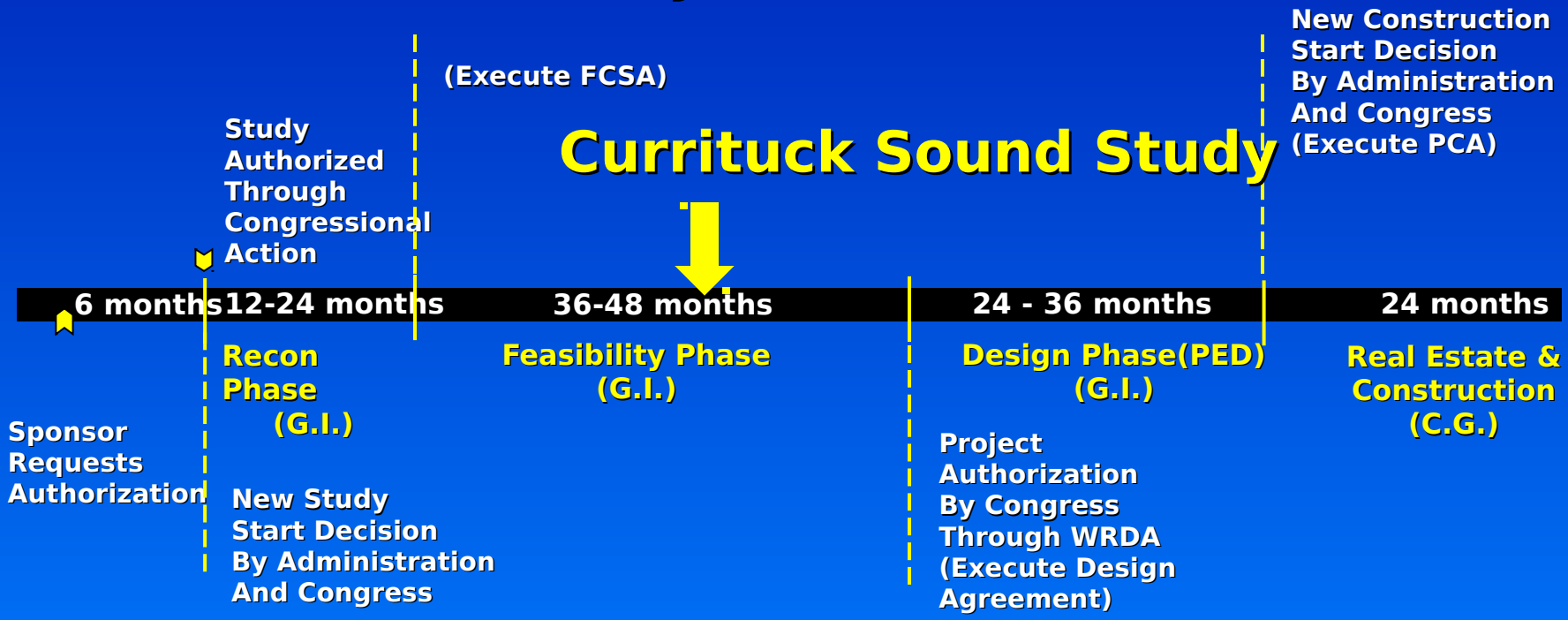
Typical Timeline for Study/Project Authorized by a Resolution or WRDA


Currituck Sound Study
Study Authorized Through Congressional Action
(Execute FCSA)
New Construction Start Decision By Administration And Congress (Execute PCA)
6 months
12-24 months
36-48 months
24 - 36 months
24 months
Sponsor Requests Authorization
Recon Phase (G.I.)
New Study Start Decision By Administration And Congress
Feasibility Phase (G.I.)
Design Phase(PED) (G.I.)
Project Authorization By Congress Through WRDA (Execute Design Agreement)
Real Estate & Construction (C.G.)

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Currituck Sound Study Overview
3. Feasibility Phase

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JUL 01 – Reconnaissance Report Approved by Headquarters

AUG 01 - Draft Project Management Plan (PMP) Completed

APR 02 – Sponsor's Advisory Committee Formed

FEB 04 –Feasibility Cost Sharing Agreement Signed

JUN 04 – Initial Feasibility Funding Received & Technical Work Groups Formed

JAN 05 – Draft Scopes of Work for models and studies submitted to the Executive Committee

JUL 05 to Present - Data Collection Efforts (Water Properties, vegetation, GIS, waterfowl and fisheries data), Hydrodynamic and Water Quality Modeling, Watershed Modeling, Preparation of

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Currituck Sound Study Overview
3. Feasibility Phase

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Three-Phase Study Approach

Phase 1

Determine Study's:

- **Data Needs**
- **Data Gaps**
- **Costs for Data Collection**

Phase 2

- **Perform Individual Studies**
- **Establish Specific Goals & Objectives**

Phase 3

- **Develop Recommended Alternatives to meet Phase 2 Objectives**

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Currituck Sound Study Overview
3. Feasibility Phase

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Study Management Structure

Executive Committee
COE Project Manager
State Study Manager
COE Planner
Hydrologic/Hydrodynamics & Water Quality Modeling Work Group
Shellfish, SAV's, Waterfowl, & Fisheries (SSWF) Work Group
Public Involvement Work Group

CURRITUCK SOUND STUDY, NC
LIVING RESOURCES WORK GROUP

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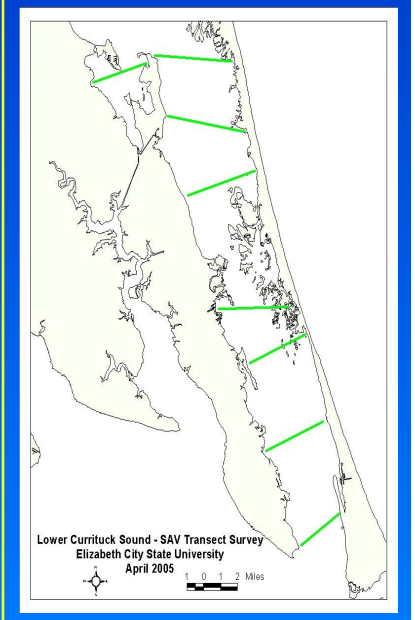
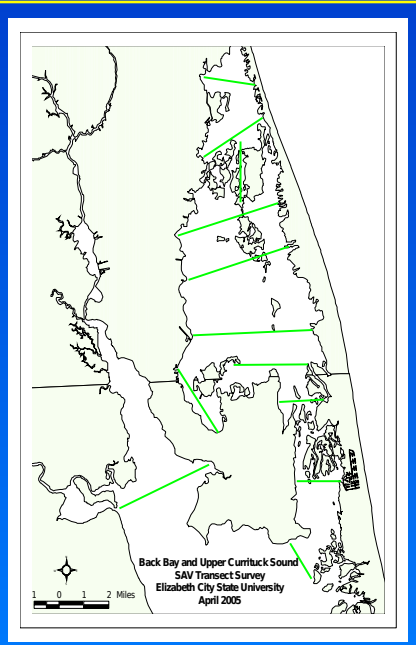
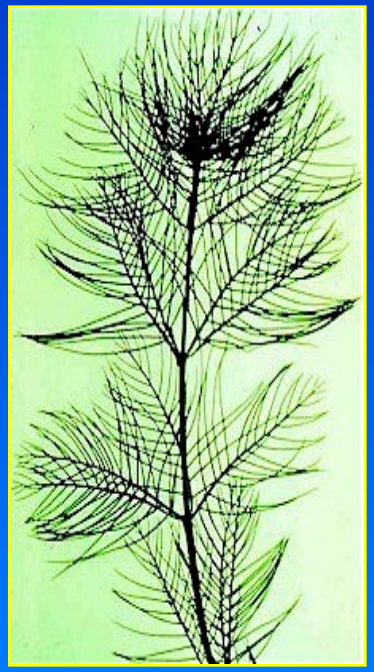
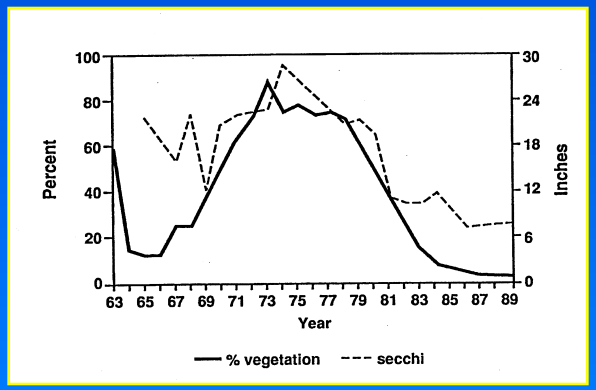
Windows XP
Professional
THE COASTLINE OF NORTHEASTERN NORTH CAROLINA AND SOUTHEASTERN VIRGINIA....
YOU HAVE NEVER SEEN IT BEFORE!









CURRITUCK SOUND, NC
SUBMERGED AQUATIC VEGETATION

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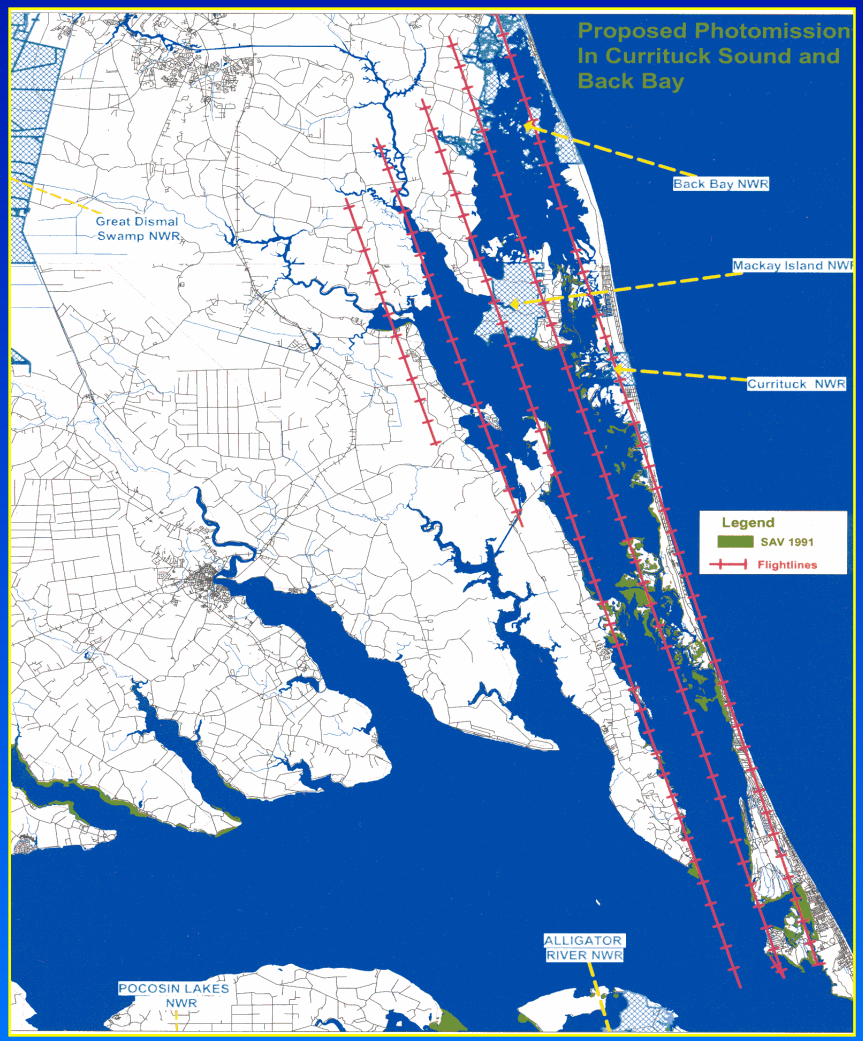

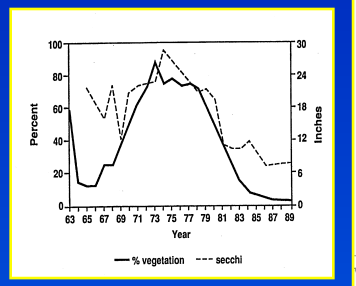

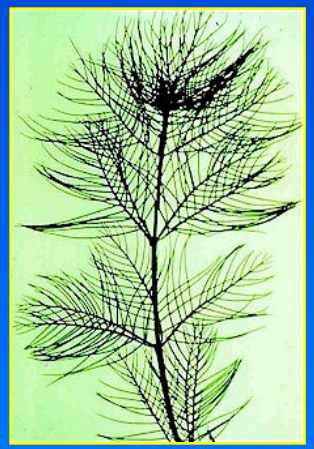

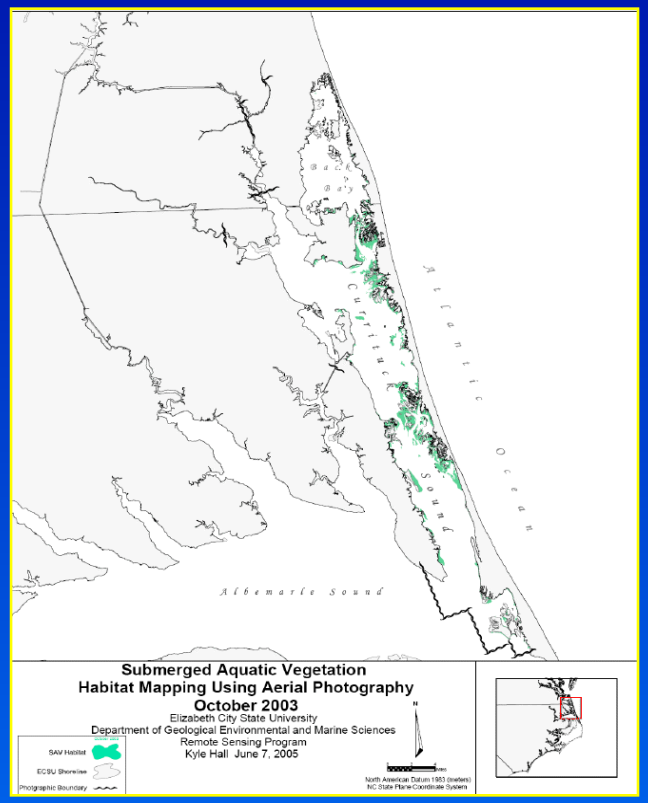

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Currituck Sound Study Overview
4. Work Groups

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Living Resources Work Group - Shellfish, SAVs, Waterfowl and Fisheries Work Group

Vegetation Sub-group

- SAV transects, compare existing data to Sincock data, establish habitat requirements for species of interest, side-scan sonar mapping

SAV transect data collection

Side-scan sonar data collection

Waterfowl Sub-group

- Obtain location and population data for waterfowl communities, historic and present

Historical Populations and Long-term trends of Waterfowl, Fish, Threatened/Endangered Species within Back Bay, VA and Currituck Sound, NC

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Currituck Sound Study Overview
4. Work Groups

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Living Resources Work Group - Shellfish, SAVs, Waterfowl and Fisheries Work Group

Fisheries Sub-group

- Analysis of fisheries to establish status and trends for fish communities.

Historical Populations and Long-term trends of Waterfowl, Fish, Threatened/Endangered Species within Back Bay, VA and Currituck Sound, NC

GIS Sub-group

- Insure logical consistency and spatial integrity of geographic data, compile necessary spatial data sets into a geo-database, and make data available to members through an internet map service.

Sincock Goes Digital, A GIS Window to the Master Surveys of the 1958-64 Back Bay Currituck Sound Cooperative Studies.

CURRITUCK SOUND STUDY, NC
HYDRODYNAMICS / WATER QUALITY
MONITORING AND MODELING GROUP

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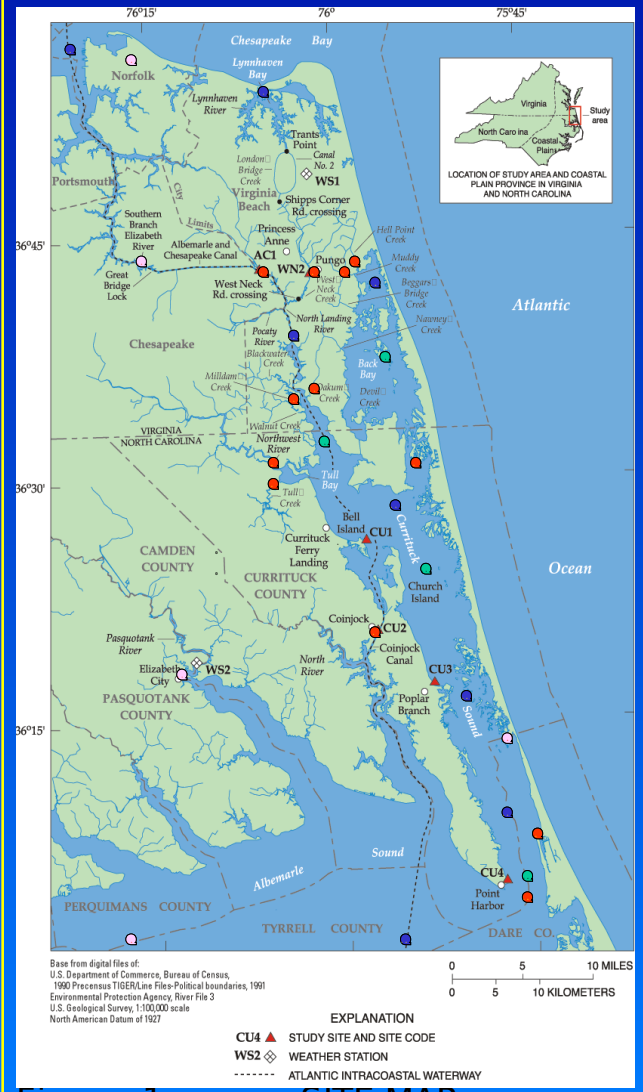
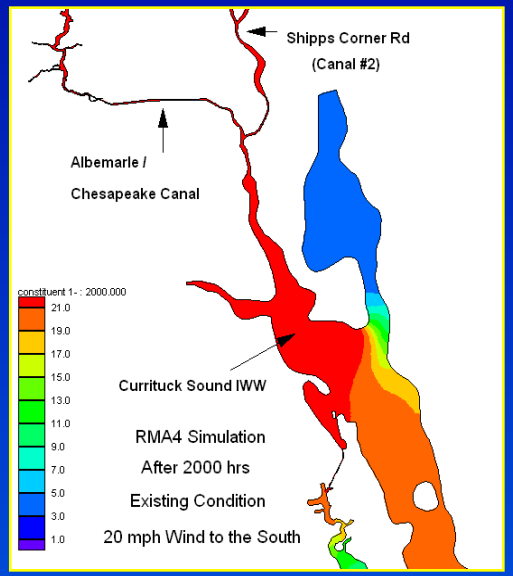
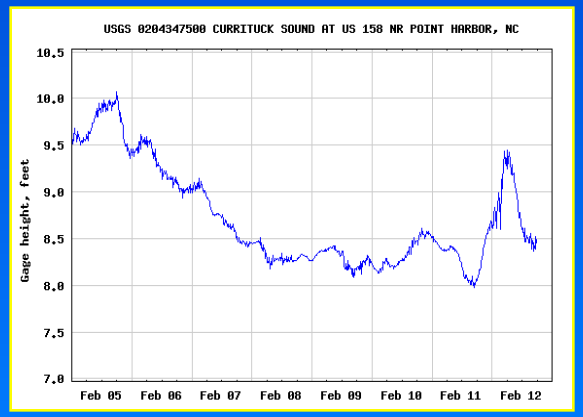
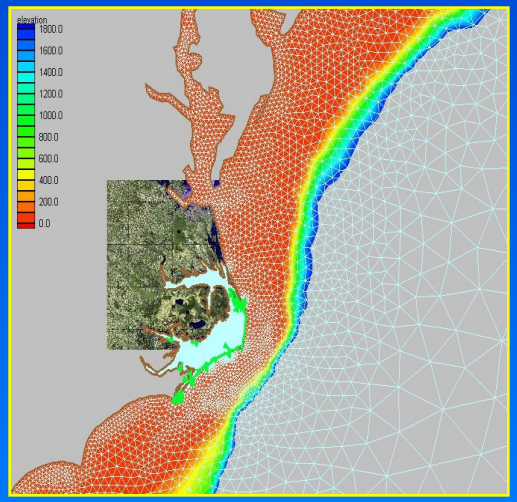


Figure - 1 SITE MAP







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Currituck Sound Study Overview
4. Work Groups

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Hydrologic/Hydrodynamic and Water Quality Monitoring and Modeling Group

Monitoring Sub-group

Gage Installation, Data Collection, Data Processing

USGS Data Collection Report

Modeling Sub-group

Regional and Local HM and WQ Grid Development, Linkage and Testing

- **Development of Coupled Hydrodynamic and Water Quality Models of Currituck Sound and Vicinity**
- **Scenario Development and Simulations**

Watershed Modeling

West Neck Creek and Tull Creek Modeling expansion

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Currituck Sound Feasibility Study

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Public Involvement Work Group

Work Group Objectives:

Keep the Public & Decision-Makers aware of each all agency activities

- **Request:**

- Historical Information & Records
- Fishing & Hunting Logbooks
- Old Photographs & Maps of the Sound & Shoreline

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Currituck Sound Study Overview
5. Schedule

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WQ Data Collection - 2007 **Fiscal Yr (FY)**

Vegetation, Waterfowl, Fisheries Data Collection - FY 2007

Feasibility Scoping Package - FY 2008/09

Scenario Modeling - FY 2008/09

Watershed Modeling - FY 2008/09

Feasibility Scoping Meeting - FY 2009

Modeling Scenarios Complete - FY 2009

Identification of Prelim Alternatives (potential project areas) - FY 2009

Screening of Alternatives FY 2010

IWR-Plan – Cost and Habitat Units Output per Alternative - FY 2010

National Environmental Restoration Plan - FY 2010

Alternative Formulation Briefing (AFB) Package - FY 2010

Draft Feas Report/ Env Impact Statement (EIS) & Watershed Mngmt Plan- FY 2011

Peer Review/ ITR - Throughout

Division Commander's Notice - FY 2011

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Currituck Sound Study Overview

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Questions?

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mitch.h.hall@usace.army.mil

Access this presentation on our website at:
http://www.saw.usace.army.mil/Currituck%20Sound/main.htm